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5.2 GEOLOGIC HAZARDS AND RESOURCES

This section presents information on the general geology of the region, subsurface conditions at the site, geologic hazards affecting the site and linear facilities (transmission lines and pipelines), and potential impacts of the project on the geologic resources in the area.

Identification of geologic hazards and mineral resources is based on published literature and site investigations. Regarding geologic resources, evaluations of impact significance are based on the type and the proximity of resource to the project. Recommendations are provided for mitigation of geologic hazards at the site, and a discussion of applicable laws, ordinances, regulations, and standards (LORS) is also included. Tables and figures are found at the end of this section.

The information provided in this section is based on a review of published geologic and mineral resource references and the Geotechnical Investigation prepared by Geotechnics Incorporated, February 2002. This report is found in Appendix J.

5.2.1 Affected Environment

The Salton Sea Unit 6 (SSU6) site, including well pads and linear facilities, is in the Imperial Valley region of California along the southeast end of the Salton Sea. The topography at the site is characterized by relatively flat, low-lying farmland separated from the waters of the Salton Sea by an earthen embankment along the western margin of the site. Currently, the surface of the Salton Sea is at an elevation of -227 feet below sea level. Elevations at the proposed plant site range from approximately -232 feet below sea level at the lowest point along the west side to approximately -227 feet below sea level along the east side of the site. Juxtaposed against the generally flat terrain is Obsidian Butte, which lies approximately 0.5 miles west of the site. This volcanic glass dome rises approximately 100 feet above the surrounding farmland.

The plant site and facilities would traverse similar flat farmland topography as the plant site. The major difference is the presence of irrigation canals and/or drains that parallel or cross the alignments. In general, these features consist of near vertical-walled trenches ranging from 5 to 10 feet deep and 10 to 30 feet wide. The electrical transmission line also crosses the New River that is characterized by 5- to 10-foot-high, oversteepened slopes.

5.2.1.1 Tectonic Framework

The SSU6 Project is within the south-central portion of the Salton Trough, a topographic and structural depression within the Colorado Desert physiographic province, bounded to the north by the Coachella Valley and to the south by the Gulf of California. The Salton Trough may have originally formed as a major half-graben during the regional crustal extension that took place in much of western North America in the Miocene (Frost et al., 1997). Crustal attenuation during the Miocene may have helped to preferentially localize the faults of the San Andreas system within narrow zones, or blocks of rigid upper crust during the onset of transform faulting (Frost et al., 1997). The Salton Trough is now within a zone of transition from the ocean-floor spreading regime of the East Pacific Rise in the Gulf of California and the transform tectonic environment of the San Andreas fault system (Elders, 1979). Relative plate motion between the North American plate and Pacific plate is thought to be transferred to the San Andreas fault near the south end of the Salton Sea (Sharp, 1972; Sylvester, 1976). The three main fault zones that comprise the San Andreas fault system in this region form clear tectonic boundaries around the Salton Trough. Geophysical studies indicate the presence of a steep gravity gradient across the San Andreas fault along the eastern edge of the Trough (Biehler, et al., 1964). This gravity gradient indicates the northwest trending San Andreas fault is the principal structural boundary between the Salton Trough and the west edge of the North American plate (Sylvester, 1987). The Orocopia and Chocolate Mountains represent the broken edges of the plate along the eastern margin of the Salton Trough and are included in the southern Basin and Range physiographic province (Frost, et al., 1997). The eastern edge of the Pacific plate is composed of intermediate composition granitic rocks of the Peninsular Ranges physiographic province. This eastern edge of the plate, which forms the western portion of the Salton Trough, has been offset along multiple strands of the San Andreas system, including the Elsinore and San Jacinto faults. The Salton Trough occupies the structurally weak zone between the strong, solid edges of the Pacific and North American plates. A zone of high seismicity connects the San Andreas fault north of the Salton Sea and the Imperial fault south of the City of Brawley. This structurally low area, called The Brawley Seismic Zone, may be the result of a tensional or releasing step between the San Andreas and Imperial faults (Figure 5.2-1).

The basement of the Salton Trough is composed of Late Cenozoic and older crystalline igneous and metamorphic rocks. Extensive geophysical studies by the U.S. Geological Survey in the Imperial Valley region indicate that the subbasement, or lower crust beneath the axis of the Salton Trough is composed of a mafic intrusive complex similar to oceanic middle crust (Fuis and Kohler, 1984). In contrast, the Peninsular Ranges to the west and Chocolate Mountains to the east of the Salton Trough are underlain by pre-Cenozoic crystalline rocks (Fuis and Kohler, 1984).

Two north-south oriented tensional spreading centers have been identified in the Salton Trough based on geophysical surveys and recent volcanic activity (Kerr and Kidwell, 1991; Fuis and Kohler, 1984). One spreading center is in the southern end of the Trough, approximately 18.5 miles south of the international border in the Mexicali Valley of Baja California. The second spreading center is in the northern end of the Trough and extends from the south part of the Salton Sea to the south under the city of Brawley. Volcanic activity associated with these spreading centers has reached the surface and formed the Cerro Prieto volcano in Baja California and the Salton Buttes near the Salton Sea (a group of five small extrusive domes with a northeast trend). Both are composed of rocks similar in origin to the volcanic rocks of the East Pacific Rise in the Gulf of California (Elders, 1979). Younger intrusions associated with these spreading centers are the sources of high temperature (>350° C) hydrothermal systems of the Cerro Prieto and Salton Sea geothermal fields (Elders, 1979). The SSU6 Project site lies within the Salton Sea geothermal field. Several other areas in the Salton Trough, such as the Heber geothermal field near Calexico, are moderate temperature hydrothermal systems (approximately 200° C), and the heat source for these systems appears to be deep circulation of groundwater, possibly fault controlled (Herber, 1985).

The Salton Sea geothermal field itself appears to be controlled by buried basement faults (blind faults) that extend up into the overlying sedimentary formations. The main blind faults in the subsurface below the site terminate approximately 2,000 feet below the existing ground surface. These main blind faults trend east-west and northeast-southwest and are identified on Figure 5.2-3A. The brine north of the faults is much warmer than the brine to the south. Production wells are typically north of the faults, whereas injection wells are usually south of the faults.

5.2.1.2 Regional Stratigraphy

The oldest sedimentary units mapped by Dibblee (1954) in the Imperial Valley region are the Middle to Late Miocene Split Mountain and Mecca Formations, and the Pliocene Imperial Formation. The Split Mountain and Mecca Formations are comprised chiefly of coarse grained, locally derived detritus from the surrounding mountains (Sylvester, 1976). These formations lie non-conformably on the crystalline basement rocks where they are observed in the western margin of the basin (Sylvester, 1976). The Imperial Formation consists of mudstones and shales that record a major marine incursion into the basin during the late Miocene to early Pliocene. This marine embayment extended as far north as Whitewater in the Coachella Valley, indicating the Salton Trough was already well defined during this time (Elders, 1979). The upper parts of these formations record a gradual change to continental deposition as the Colorado delta developed. The marine waters of the Gulf were cut off from the Salton Trough by growth of the Colorado River delta, resulting in the closed basin present today. The deltaic deposits consist of interbedded sands, silts, clays, and pebble conglomerates. The Pliocene Canebrake Conglomerate is composed of these coarse basin margin facies while the Pliocene to Pleistocene Palm Springs Formation is composed of finer grained sandstones and mudstones deposited in the central portion of the basin. During the Late Pleistocene and Holocene, the basin was periodically inundated by floodwaters of the Colorado River to form lakes. The fine-grained silts and clays of the Brawley and Borrego Formations represent the lacustrine sedimentation, which dominated the Pleistocene. Continued deposition of coarser sediments by the Colorado River along the basin margin during the Pleistocene resulted in the Ocotillo Conglomerate. The most recent sediments deposited in the series of fresh to brackish water lakes occupying the closed basin of the Salton Trough comprise the Holocene Lake Cahuilla Beds.

Little published information exists about the nature and age of the sedimentary deposits in the central part of the Salton Trough. Based on exploration well data, and geophysical survey information, these Cenozoic marine and nonmarine deposits may be as much as 20,000 feet thick. Pleistocene and Holocene alluvial and lacustrine deposits comprise the upper 3,000 feet of the section (Dibblee, 1954; Kovach, et al., 1962). The broad outlines of the stratigraphy of the Cenozoic rocks filling the Trough have been summarized by Dibblee (1954) and Sharp (1972). Maximum marine submergence occurred during the Pliocene, and intermittent shallow marine environments existed within the western part of the valley until the middle Pleistocene (Woodard, 1974). Correlation of stratigraphic units across the basin is particularly difficult both in outcrops and in the subsurface because of abrupt lateral facies changes, as is characteristic of these types of deposits. In general, the distribution of sedimentary facies is asymmetric as shown in Figure 5.2-2.

5.2.1.3 Local Geology

The site, including well pads and linear facilities, is adjacent to the southeast end of the Salton Sea, which covers an area of approximately 360 square miles, and is California's largest lake. The latest flooding of the basin by the Colorado River in 1905 created the present-day Salton Sea (Sharp, 1982). There are no natural outlets for the trapped water and it is slowly evaporating, becoming increasingly saline. The surface of the Salton Sea is currently at an elevation of –227 feet below sea level. The geology within a 2-mile radius of the site and along the planned transmission lines is shown on

Figures 5.2-3A through 5.2-3E. Geomorphic features near the site are shown on Figures 5.2-3A through 5.2-3E and include the Salton Sea, Obsidian Butte, and the Alamo and New Rivers.

Obsidian Butte lies west of the site and is the westernmost of five small extrusive rhyolite domes arranged along a northeast trend. These 16,000-year-old domes, collectively known as the Salton Buttes, were extruded onto Quaternary alluvium. These mushroom shaped domes consist of low-calcium, alkali rhyolite with only 1 or 2 percent crystals (Robinson et al., 1973). The rhyolitic and basaltic rocks found at the Salton Buttes are identical in composition to rhyolites erupted on islands and low potassium tholeitiic basalts erupted on the seafloor of the East Pacific Rise (Robinson et al., 1973). These observations support the hypothesis that the Salton Trough is an active spreading center similar to those found in oceanic spreading centers like the East Pacific Rise (Robinson et al., 1973).

The SSU6 Project site is underlain by Holocene lacustrine deposits associated with ancient Lake Cahuilla. Lake Cahuilla was formed during the last 1,000 years and evidence of its shoreline is still present around the Imperial Valley. The lacustrine sediments are estimated to be roughly 100 to 300 feet thick (Kovach, et al., 1962). In general, the lacustrine deposits include sandy deltaic sediments, sandy beach deposits along ancient shorelines, and clay and silt deposited in deeper parts of the lake. The finer grained sediments contain lenses of sand toward the lake margin. An average shear wave velocity of 600 feet per second was determined for the subsurface soils at the site during the Geotechnical Investigation (Appendix J). The shear wave velocities ranged from 435 feet per second to 1,500 feet per second for the upper 100 feet of sediments at the site.

Subsurface conditions are described in greater detail in the Geotechnical Investigation (Appendix J). Based on hollow-stem borings and cone penetration test (CPT) soundings conducted during the geotechnical investigation, the near surface deposits are composed of clay (Unified Soil Classification symbol CL). The surficial soil ranged in thickness from 1 to 6 feet. Below the surficial soil, lake deposits, consisting of interbedded, relatively continuous, thinly bedded (1 to 4 feet thick), silty sand (SM), and sandy silt (ML) were encountered to the bottom of the borings (up to 58 feet deep). Few very thin beds of clay were observed in the sediments. The sediments were uniformly brown in color. The southern portion of the site contains locally thicker, dense sand beds between 20 to 28 feet and between 36 to 48 feet below the surface.

The site is in an area of shallow local groundwater conditions. The surficial soils were observed to be saturated, and groundwater was encountered in all of the subsurface explorations at depths between 0 and 6 feet below the surface. A possible artesian groundwater condition was observed along the western portion of the site at one of the CPT sounding locations (CPT-2). In general, groundwater elevations at the site likely result from a combination of crop irrigation and the current level of the Salton Sea.

The well pads and linear facilities, including transmission lines and water pipelines (linear facilities), would be underlain by similar earth materials as the generation plant; thin to moderately thick bedded sand and clay. Groundwater levels beneath the linear facilities would generally increase (<10 feet) the farther they are from the Salton Sea.

5.2.1.4 Geologic Hazards

The primary geologic hazards at the power plant site include strong ground motion from a seismic event centered on one of several nearby active faults, and liquefaction of the sandy soils that underlie the site given strong ground shaking. Additionally, there is the potential for earthquake induced flooding of the site if the Vail Lateral 5 Drain embankment forming the western site boundary were to fail.

The well pads and linear facilities would be affected by strong ground shaking, localized liquefaction, and lateral spreads or landsliding if situated close to irrigation/drain trenches and the steep banks of the New River. The general geologic hazards and seismicity at the site are discussed in detail below.

5.2.1.4.1 Seismicity

The site and associated linear facilities are in one of the most seismically active areas in California. At least two-thirds of the relative motion between the North American and Pacific plates in California occurs in the San Andreas fault system (Hutton et al.. 1991; Sieh and Jahns, 1984). In southern California, deformation on this complex fault system is spread over four major fault zones: the San Andreas fault zone, the Imperial fault zone, the San Jacinto fault zone, and the Elsinore fault zone. Another prominent seismogenic structure in the Imperial Valley is a zone of high seismicity connecting the northwestern end of the Imperial fault and the southeastern end of the San Andreas fault called the Brawley Seismic Zone (Johnson, 1982). To illustrate the large amount of seismic activity near the site, the program EQSEARCH was used to generate a table of estimated characteristics of nearby events greater than magnitude 4.0 recorded between 1800 and 1995. Table 5.2-1 summarizes these characteristics, including epicenter location, magnitude, estimated peak ground accelerations, and dates of the nearby earthquakes. The following section discusses significant faults within a 62-mile radius (100 kilometers [km]) of the site in order of increasing distance.

Brawley Seismic Zone

The proposed plant site, well pads, and linear facilities are within the Brawley Seismic Zone. This structural depression lies between the San Andreas fault to the northeast and the Imperial fault to the southwest. The Brawley Seismic Zone was first recognized because of the number of earthquake swarms produced from 1973 through 1979 (Johnson and Hutton, 1982). The swarm sequences and individual event clusters in the 1979 Imperial Valley Earthquake aftershock sequence defined lineations transverse to the strike of the Imperial fault (Johnson and Hutton, 1982). Two types of earthquake swarms occur in the Brawley Seismic Zone. Swarms that occur in the south end of the zone near the town of Brawley tend to occur in pairs, nucleating on the Imperial fault to the south and propagating away from it into the Seismic Zone. Swarms occurring in the northern part of the zone nucleate within the zone and do not occur in pairs (Hutton et al., 1991; Johnson, 1979). Analysis of these swarms suggests they are triggered by creep events on the Imperial fault (Johnson, 1982). The blind faulting controlling the geothermal resource geometry does not extend into recent sediments and, therefore are not considered potential sources of ground rupture. Following the 1940 Imperial Valley Earthquake, swarm activity in the Brawley Seismic Zone ceased until the mid-1970s, most likely because of the drop in regional stress after the M_w6.9 event (Hutton et al., 1991).

The Brawley Seismic Zone is characterized by earthquake swarms, generally less than magnitude 3 or 4. CDMG fault parameters for the Brawley Seismic Zone indicate a slip rate of 1 inch per year (25 mm per year) and a maximum moment magnitude of 6.4.

Elmore Ranch Fault Zone

The Elmore Ranch fault zone is approximately 10 miles (16 km) west of site. The fault zone is composed of six northeast-southwest trending parallel segments up to 7.5 miles (12 km) long. These are commonly termed the Elmore Ranch fault, the West Elmore Ranch fault, the East Elmore Ranch fault, and the Lone Tree fault. Two smaller faults are in the northeast portion of the fault zone known as the Kane Spring fault and East Kane Spring fault. These left-lateral faults are conjugate faults, or cross-faults to the adjacent southern segment of the San Jacinto fault zone (the right lateral Superstition Hills fault), and the Brawley Seismic Zone to the east. The 1987 Mw6.2 Elmore Ranch Earthquake ruptured these faults and triggered slip on the Superstition Hills fault, which followed with a Mw6.6 event approximately 12 hours later. Aftershocks of the Elmore Ranch Earthquake extended into the Brawley Seismic Zone to the east (Magistrale et al., 1989). The nearly simultaneous activation of a conjugate fault pair is unique in the United States. Work by Hudnut et al., (1989) indicates the fault has ruptured at least once prehistorically, within the last 330 years, possibly as a conjugate pair with the Superstition Hills fault. The earthquake sequence discussed above has generated an important point discussed in the literature, and that is potential cross fault triggering of the San Andreas fault. As discussed below, the Coachella, or southern segment of the San Andreas fault has not ruptured historically. According to Hudnut et al., (1989) future slip on other known cross-faults would decrease normal stress across the southern San Andreas fault, potentially triggering an earthquake by a mechanism similar to that observed in the Superstition Hills sequence.

CDMG fault parameters for the Elmore Ranch faults indicate a combined slip rate of 0.04 inches per year (1 mm per year) and a maximum moment magnitude of 6.6.

San Andreas Fault Zone

The Coachella Valley segment of the San Andreas fault is approximately 59 miles (95 km) long and extends from the town of Indio to Bombay Beach on the northeast shore of the Salton Sea, approximately 14 miles (22.5 km) from the site. North of Indio, the fault splays into two active strands, the Banning and the Mission Creek faults. The San Andreas fault has not been mapped south of the Salton Sea. While a linear extension of the fault may exist under the Salton Sea or in the northern Imperial Valley, there has been no geologic or geophysical evidence to support it (Sharp, 1982). It seems reasonable that the Imperial fault and Brawley Seismic Zone, which lie southwest of that San Andreas fault, may be linked together structurally with the San Andreas fault. Seismic activity along the Brawley Seismic Zone suggests that a major portion of the displacement observed on the Imperial Fault is being transferred to the San Andreas fault to the northeast (Hutton et al., 1991). Most of the aftershocks following the 1979 earthquake on the Imperial fault occurred within the Brawley Seismic Zone (Sharp, 1982). The Imperial fault has a similar strike as the southern segment of the San Andreas fault and has been modeled as a releasing step with the Brawley Seismic Zone occupying the resulting structural depression (Frost, et al., 1997). Dillon and Ehlig (1993) hypothesize the San Andreas fault may join the northeast corner of the Brawley Seismic Zone, and represents the most northerly spreading axis in a system of short spreading axes and interconnected transform faults that form the divergent plate boundary in the Gulf California.

While the San Andreas fault has generally produced few moderate-sized earthquakes in historic times no large earthquake (M_w>7.0) has been documented in the historic record for the San Andreas south of San Bernadino (Hutton et al., 1991). This ‘locked’ southernmost section of the fault also lacks microseismicity and stands in sharp contrast to the northern sections of the fault that have ruptured with the largest historical earthquakes in California.

CDMG fault parameters for the Coachella segment of the San Andreas fault indicate a slip rate of 1 inch per year (25 mm per year) and a maximum moment magnitude of 7.1.

San Jacinto Fault Zone

The San Jacinto fault zone is approximately 16 miles (25 km) west of the site. This zone is a major tectonic and seismic structure, striking northwest for more than 124 miles (200 km). The San Jacinto fault zone is part of the San Andreas fault system. The southern segment of the San Jacinto fault zone is composed of the Coyote Creek fault and the Superstition Hills and Superstition Mountain faults. The Coyote Creek strand of the fault zone extends from just north of Borrego Springs to the northeast end of the Fish Creek Mountains north of Plaster City. The fault is not exposed at the surface to the south, as it is buried by young sediments. The Superstition Hills fault and the Superstition Mountain fault lie along strike to the southeast of the Coyote Creek fault, and are generally considered the southern extension of the San Jacinto fault zone.

The San Jacinto fault zone is seismically the most active structure in southern California at all magnitude levels below M_w7.0 (Hutton et al., 1991). This fault zone has produced at least 10 earthquakes of M_w6.0 to 6.6 since 1890. This gives an average recurrence interval of approximately 10 years for a moment magnitude M_w6.0 and larger event (Hutton et al., 1991). The most recent large earthquakes to occur on the San Jacinto fault system were the M_w6.4 Arroyo Salada Earthquake of 1954, the Borrego Mountain earthquake (M_w6.6) in 1968, and the Superstition Hills earthquake (M_w6.6) in 1987. CDMG fault parameters for the San Jacinto fault zone are given for each segment: Coyote Creek; 0.16 inches per year (4 mm per year) slip rate and maximum moment magnitude of 6.8, Superstition Hills; 0.16 inches per year (4 mm per year) slip rate and maximum moment magnitude of 6.6, Superstition Mountain; 0.2 inches per year (5 mm per year) slip rate and maximum moment magnitude of 6.6.

Imperial/Brawley Fault

The Imperial fault zone is approximately 16.5 miles (26.5 km) southeast of the site. This northwest trending fault is approximately 40 miles (65 km) long and extends from just southwest of the City of Brawley, southeast to the town of Saltillo, Mexico. The Brawley fault is the northeastern branch of the Imperial fault and was generally unrecognized until a series of small earthquakes causing surface rupture occurred in 1975 (Sharp, 1976). Both faults ruptured together in the 1979 M_w6.4 event, confirming its presence and relationship to the Imperial fault. The Imperial fault has been modeled as the transform fault between the two northernmost small spreading centers that characterize oblique spreading in the Gulf of California, the Brawley Seismic Zone and the Cerro Prieto geothermal field in Mexico (Johnson and Hill, 1982).

The Imperial fault is one of the most active faults in the region. In addition to the M_w6.4 earthquake in 1979, the fault also ruptured with a M_w6.9 event in 1940. The 1979 earthquake produced seismic intensities at Niland and Calipatria of V to VI (Reagor et al., 1982), and caused widespread liquefaction. Moderate earthquakes (M_w5.5 to 6.3), which occurred in 1906, 1915, 1917, and 1927, are associated with the Imperial fault (Johnson and Hill, 1982). CDMG fault parameters for the Imperial fault indicate a slip rate of 0.8 inches per year (20 mm per year) and a maximum moment magnitude of M_w7.0.

Elsinore Fault Zone

The Elsinore fault zone is approximately 35 miles (56.5 km) west of the site. The southern segment of the Elsinore fault is approximately 124 miles (200 km) long and extends from the Los Angeles basin, where it splays into the Whittier and Chino faults, to the southwest end of the Imperial Valley, west of El Centro. This fault zone is the major structural boundary between the Peninsular Ranges and the west side of the Salton Trough (Frost et al., 1997).

The Elsinore fault zone is characterized by a moderate amount of seismicity, having experienced several earthquakes in the magnitude range M_w5.0 to 6.0. The only large earthquake to occur on the Elsinore fault in the historic record is the M_w6.0 earthquake along the central section in 1910. CDMG fault parameters for the Elsinore fault indicate a slip rate of 0.16 inches per year (4 mm per year), and a maximum moment magnitude of 6.8.

Laguna Salada Fault

The Laguna Salada fault trends northwest and is approximately 36 miles (58 km) southwest of the site in northern Baja California, Mexico. The fault is approximately 47 miles (75 km) long and bounds the western margin of the Sierra Cucapa Mountains. The northern Laguna Salada fault may be linked to the Elsinore fault across a complex zone of northeast and northwest striking faults in the Yuha basin (Mueller and Rockwell, 1995).

The most recent large earthquake along the Laguna Salada fault is most likely the earthquake in 1892. The estimated moment magnitude for this event, based on ground rupture lengths and measured offsets is M_W7.1 (Mueller and Rockwell, 1995). CDMG fault parameters for the Laguna Salada fault indicate a slip rate of 0.14 inches per year (3.5 mm per year), and a maximum moment magnitude of 7.0.

Cerro Prieto Fault

The Cerro Prieto fault is approximately 55 miles (88 km) south of the site in northern Baja California, Mexico. This northwest striking fault is over 62 miles (100 km) long and has been characterized as the southern extension of the San Andreas-Imperial fault system. Like the Imperial fault, the Cerro Prieto fault is adjacent to a structural depression and active spreading center.

The only historic earthquake to occur on the Cerro Prieto fault was in 1934 with an estimated moment magnitude of M_W6.5 to 7.5. Fault parameters for the Cerro Prieto fault have not been characterized by the CDMG.

5.2.1.4.2 Ground Shaking and Surface Rupture

To provide an estimate of the potential peak ground acceleration that structures founded at the site may experience, a probabilistic analysis of seismicity was performed (Appendix J). The probabilistic analysis incorporates the contribution of all known active faults within a 62 mile (100-kilometer) radius of the site for which published data is available. The analysis attempts to account for uncertainty in rupture size, rupture location, magnitude and frequency, as well as uncertainty in the attenuation relationship. Based on the results of the probabilistic analysis, the Upper Bound Earthquake for the site results in a peak ground acceleration of 1.35g and an associated return period of roughly 1,000 years. The Upper Bound Earthquake is defined as the motion having a 10 percent probability of being exceeded in 100 years. The Design Basis Earthquake is estimated to have a 10 percent probability of being exceeded in 50 years (or a 475-year return period). The Design Basis Earthquake results in a peak ground acceleration of 1.16g. For additional site specific seismic hazard analysis information, including deterministic and probabilistic analysis data and methodology, see the Geotechnical Investigation (Appendix J).

As discussed previously, the site, well pads, and associated linear facilities are within the Brawley Seismic Zone. This zone is defined by epicenters of microseismic events or aftershocks following earthquakes on adjacent active faults rather than from geologic mapping of surface ruptures and geomorphic features. There are no known faults that reach the ground surface; therefore the site is not within an Alquist-Priolo Earthquake Fault Zone (Hart and Bryant, 1997). Although stress is being transferred to the Brawley Seismic Zone from adjacent active faults, historic and microseismic records indicate the stress is released gradually through relatively constant earthquake swarm activity. This results in a fault-creep type mode of deformation with characteristic earthquakes generally less than magnitude 3.0. Therefore, the potential for ground rupture at the site because of faulting in the Brawley Seismic Zone is considered low.

5.2.1.4.3 Liquefaction

Liquefaction is a process in which soil grains in a saturated sandy deposit lose contact because of earthquakes or other sources of ground shaking. The soil deposit temporarily behaves as a viscous fluid; pore pressures rise, and the strength of the deposit is greatly diminished. Liquefaction is often accompanied by sand boils, lateral spreading, and post-liquefaction settlement as the pore pressures dissipate. Liquifiable soils typically consist of cohesionless sands and silts that are loose to medium dense, and saturated. The site is within the Imperial Valley, an area that is susceptible to liquefaction. The 1940 and 1979 earthquakes on the Imperial fault caused widespread liquefaction in areas underlain by alluvium, areas adjacent to canals and drains, and in areas underlain by lake deposits. These liquefiable sites contained predominantly loose sandy soils, or sequences of thick sandy layers within finer grained soils (Youd and Wieczorck, 1982; Holtzer et al., 1989).

A liquefaction analysis was performed on data from CPT soundings conducted at the site during the geotechnical investigation. As described in Section 5.2.1.3, Local Geology, the site is underlain by deep lacustrine deposits, including loose silty sands, soft silts, and clays. Results of the analysis indicate that liquefaction of some of the sandy deposits is likely even with relatively low levels of ground shaking from one of the many nearby seismic sources (as low as 0.2 to 0.3g). The magnitude weighted Design Basis peak ground acceleration from the probabilistic analysis is 0.92g. At this level of ground shaking, much of the sandy deposits at the site will likely liquefy.

The linear facilities and well pads are similarly affected by liquefaction because they are underlain by the same geologic and groundwater conditions.

5.2.1.4.4 Subsidence and Settlement

The site is subjected to subsidence from regional tectonic processes and from localized fluid withdrawal. Subsidence data compiled by the Applicant from their local survey network indicates approximately 0.8 inches (20 mm) to 2.4 inches (60 mm) of settlement across the site from 1989 to 1999. These values most likely represent localized subsidence because of fluid withdrawal resulting from geothermal production. The amount of subsidence caused by fluid withdrawal at the site does not create significant differential settlement conditions for the proposed improvements. Consequently, the potential for damaging localized differential settlement from fluid withdrawal subsidence is considered low.

The site is within a region of active subsidence because of regional faulting. The Salton Trough is filled with up to 20,000 feet of Cenozoic-age sediments. Regional subsidence resulting from a combination of tectonic processes, including faulting and possible reservoir loading by the Salton Sea, may combine to produce roughly 1.6 inches (4 cm) of settlement per year across the entire Salton Trough (Lofgren, 1978). Subsidence resulting from tectonic processes generally occurs over large areas. Consequently, the potential for damaging localized differential settlement from regional subsidence is considered low.

As discussed in the previous section, the site is potentially liquifiable. Liquefaction is commonly followed by settlement as the excess pore pressures dissipate and the sand grains redistribute stresses. Post-liquefaction settlement at the site was estimated in the Geotechnical Investigation (Appendix J) based on CPT soundings. Results of this analysis indicate that post-liquefaction settlement at the site may vary from 6 to 9 inches. Total differential settlement across the site from complete liquefaction may typically be on the order of 3 to 4 inches. Differential settlement across small structures may be less than this amount.

The soft, loose, surficial soils that exist at the site are compressible and not suitable for the direct support of fill or foundation loads. The amount of settlement will depend on the magnitude of the foundation loads as described in detail in the Geotechnical Investigation (Appendix J).

Linear facilities, including pipelines, transmission lines, and well pads, will be affected by similar settlement hazards.

5.2.1.4.5 Flooding

The site is situated approximately 1,000 feet southeast of the Salton Sea and approximately 110 miles northwest of the Gulf of California. Rare seismic events could induce flooding at the site. These events include tsunamis within the Gulf of California, seiches within the Salton Sea, and flooding from failures along the embankments of the Vail Lateral 5 Drain.

Tsunamis

The site, well pads, and linear facilities are situated several hundred feet below sea level. This suggests that the potential may exist for inundation in case of a tsunami (seismic sea wave) within the

Gulf of California. However, the distance of the site from the Gulf (120 miles) and the higher ground surface elevations to the south of the site associated with the Colorado River delta, provide some measure of protection from such events, as there are no records (historic or geologic), which indicate that tsunamis have impacted the Imperial Valley in the last several hundred years. Therefore the potential for flooding at the site as a result of a tsunami is considered low.

Seiches

A wave created by earthquake shaking in an enclosed body of water is called a seiche. The potential for a seiche to occur is related to the natural frequency of vibration of the body of water, as well as the predominate frequencies of vibration in the seismic event. The possibility may exist for a seiche to occur in the Salton Sea. There are no records of seiches occurring during recent earthquakes in the Imperial Valley. However, because the site is situated below the level of the Salton Sea, and because the Vail Lateral 5 Drain embankment along the western side of the site has only a few feet of freeboard, the potential for flooding at the site as a result of a seiche is considered moderate. The linear facilities and well pads nearest to the generator may be subject to similar flood hazard.

Earthquake Induced Flooding

The potential for earthquake induced flooding at the site is associated with the existing earthen embankment of the Vail Lateral 5 Drain, which borders the site to the west. The stability of the embankment will be evaluated during final the final design geotechnical investigation. Appropriate measures to mitigate seismic slope failure or liquefaction settlement of the embankments will be based on the final design investigation.

5.2.1.4.6 Landslides and Lateral Spreading

Landsliding and lateral spreading usually occur in areas of relief, weak soil strength and high groundwater. They are often triggered by earthquakes. The proposed power plant site is in an area of low relief. However, the power plant site is enclosed by earthen embankments along the north side of the site and embankments for the Vail Lateral 5 Drain along the west side of the site. The embankments are approximately 7 to 10 feet high. The transmission lines and pipelines often parallel drainage trenches up to 10 feet deep and cross the New River banks. Other than these embankments, riverbanks, and trenches, there are no areas of sufficient relief to cause landsliding or lateral spreading. The potential for localized landsliding or lateral spreading to occur along drainage ditches river banks or embankments during a large earthquake is moderate to high.

5.2.1.4.7 Volcanic Hazards

The site is adjacent to an extrusive rhyolite dome known as Obsidian Butte, a member of the Salton Buttes. Additionally, the site is within an active geothermal field. The USGS includes the “Salton Buttes rhyolite center” among its listed Potential Areas of Volcanic Hazards in California (U.S. Geological Survey [USGS] Bulletin 1847). According to the USGS, the most probable future potential hazard at the site is explosive and extrusive rhyolitic eruptions, and/or phreatic and phreatomagmatic eruptions (volcanic eruptions or explosions of steam, mud or other material caused by the heating of groundwater). No recurrence interval has been estimated, and the USGS has not qualified the potential hazard other than to say it is present. Accordingly, the volcanic hazard potential at the site is considered low to moderate.

5.2.1.4.8 Expansive Soils

The subsurface investigation (Appendix J) indicates the surficial soils at the site are composed of saturated lean clay. These surficial soils are between 2 and 6 feet thick and laboratory testing indicates they have a medium expansion potential.

5.2.1.5 Geologic Resources

Based on published information (California Department of Conservation, 1977) there have been minor aggregate (pumice) or mineral mining operations within 2 miles of the site in the volcanic outcrops at Obsidian Butte and Rock Hill (Figure 5.2-3A). These are small deposits of volcanic breccia that are no longer mined. There are no known hydrocarbon resources within 2 miles of the site.

The site is within a known geothermal resource area. Initial exploration within the Salton Sea Geothermal Field indicate the brines contain unusually high concentrations of metals including Zn, Pb, Cu, Ag, Fe, Mn, Na, Ca, K, and Li, and sediments in the deeper parts of the field contain widespread ore minerals including pyrite, hematite, sphalerite, chalcopyrite, marcasite, and galena (Herber, 1985). These minerals likely originate from diagenetic, replacement, and vein filling/pore filling mineralization processes (Herber, 1985).

North of the site, large quantities of carbon dioxide gas were produced from 1933 to 1954 from shallow sands 200 to 700 feet deep. The CO_2 recovered from these shallow wells was used to produce dry ice (Elders, 1979).

The site is adjacent to Obsidian Butte, one of the small volcanic glass domes that comprise the Salton Buttes (Figure 5.2-3A). This geomorphic feature may be considered a geologic resource. The unique composition (low potassium tholeiitic basalt identical in composition to oceanic crust rocks) and location (at the surface on the continental margin) make Obsidian Butte a popular stop for geologic field trips. The project does not represent a significant impact to this geologic resource because access to the other domes comprising the Salton Buttes will still be accessible.

Sand and gravel mineral resources are present within the general project area for the electrical transmission lines as shown in Figures 5.2-3A and 5.2-3B. Mineral resources shown on Figure 5.2-3A are no longer active and are not discernable in the field.

5.2.1.6 Geothermal Resources

The project would be located in the Salton Sea KGRA. The deeper geothermal field reservoir fluids have TDS values that range from 17 to 27 weight-percent (wt-%). These TDS concentrations are consistent with the 19 to 26-wt-%-range found in reservoir fluids extracted from geothermal production wells. The TDS of the reservoir fluids generally increase as a function of both increasing depth within the system and laterally to the northeast. Reservoir fluids have non-condensable gas (NCG) contents that range from 0.1 to 0.8 wt-%. The principal constituent of the NCG is carbon dioxide. Expected properties of the produced fluid are as follows:

- 250,000 mg/l TDS
- 0.3 percent NCG (at high pressure separation pressure)
- Total enthalpy: 400.9 Btu/lb
- Equivalent Reservoir Temperature: 535ºF

The anticipated chemical composition of the produced fluids is summarized in Table 5.4-4.

5.2.2 Environmental Consequences

Potential impacts of the proposed project on the geologic or mineral resources and potential impacts of geologic hazards on the project can be divided into those related to construction activities and those related to plant operation.

5.2.2.1 Construction-Related Impacts

Construction related impacts to the geologic or mineral resources primarily involve grading operations, drilling of production and injection wells, and ground improvement operations for foundation support. The proposed improvements include excavation of several brine ponds approximately 10 feet deep surrounded by 2:1 slopes, the construction of an earthen berm approximately 8 feet high with 2:1 side slopes, a detention basin 5 to 6 feet deep, and minor grading for building pads, utilities, and for drainage of surface water flow. The project proposes graded slopes at an inclination of 2:1 (horizontal to vertical) for brine ponds and a detention basin. According to the Geotechnical Investigation (Appendix J), these 2:1 slopes should be stable. During construction, temporary slopes should be stable provided that the excavations are dewatered and/or do not extend to depths where heavy seepage is encountered. Shallow failures on the sidewalls of the detention basin may be possible given sufficient long-term seepage. Typical cut and fill depths of less than 2 to 3 feet are anticipated for these minor grading improvements. Drilling operations for the production and injection wells may require minor grading to provide a level pad during development. Ground improvement operations to mitigate the site for settlement sensitive improvements are expected to be limited to within 40 feet of the ground surface. Site development is not anticipated to result in significant adverse impacts to geologic or mineral resources. Potential impacts by geologic conditions on the construction of the project include shallow groundwater conditions and soft soils. With implementation of the mitigation measures outlined in Section 5.2.4, impacts to plant construction by the geologic environment will be reduced to less than significant levels.

5.2.2.2 Operation-Related Impacts

Plant operation impacts to the geologic environment include regional subsidence resulting from fluid withdrawal, and potentially limited access to the Obsidian Butte area for the public or for mining. Although most of the production fluids will be re-injected into the geothermal reservoir, there will be a net withdrawal of geothermal fluids that could contribute to depletion of this resource and ground surface subsidence. However, with implementation of a brine re-injection program, depletion of the geothermal reservoir and subsidence during operation of wells will be less than significant.

Obsidian Butte is not a significant mineral resource area. Similarly, the geologic resource will still be visible at the other Salton Butte volcanic domes; therefore, the project activities at Obsidian Butte do not represent a significant impact to geologic resources.

Volcanic eruptions cannot be prevented or stopped, but certain actions can be taken to reduce the risk of loss of life and damage. Most volcanic eruptions involve the rise of magma toward the surface. This upward movement of magma normally generates detectable characteristic earthquakes, deformation of the ground surface, and changes in heat flow and chemistry of the surrounding groundwater. The site is currently monitored with seismometers, which would detect magma-generated earthquakes. Surface deformation associated with rising magma at the site would be detected by the subsidence monitoring network currently in place. Finally, changes in groundwater temperature and chemistry would be noticed during standard production well monitoring during plant operation. This existing monitoring system will provide adequate warning to evacuate personnel and safely shut down the generating plant. Therefore, volcanic eruption is not considered a significant hazard to public safety at the site.

Other potential impacts of the geologic hazards on the plant and ancillary facility operations include seismic shaking, liquefaction, post-liquefaction settlement, seismically induced flooding, settlement, and subsidence. With implementation of the measures outlined in Section 5.2.4, impacts to plant operations from geologic hazards will be reduced to a less than significant level.

There would be no significant impacts to the geologic environment resulting from construction or operation of the transmission lines.

5.2.3 Cumulative Impacts

Section 5.17 describes the projects included in the cumulative impacts analysis. Cumulative impacts to the geologic resources at the site are considered negligible. Potential cumulative impacts to geothermal resources are primarily related to depletion of the power producing geothermal reservoir and surface subsidence resulting from brine withdrawal from the proposed site and currently existing geothermal power-generating facilities in the area.

It is anticipated that if undeveloped areas of the Salton Sea Geothermal Field are as productive as the proven resources, the ultimate development potential from this geothermal resource could be in excess of 1,000 MW of power generation for 30 years. Within a 2-mile radius of the proposed SSU6 Project site there are currently nine existing power-generating facilities that produce a total of about 326 MW of electricity from brines of the Salton Sea Geothermal Field. Based on the current usage, deterioration of the geothermal resource in the project area has been minimal. Given the proposed site's nominal gross output of 200 MW of electricity, operation of the SSU6 Project facility would increase utilization of the Salton Sea Geothermal Field's electrical resource to about 51 percent of its potential. Therefore, the cumulative effect of the proposed SSU6 Project site and the existing geothermal electrical power generating facilities is not anticipated to significantly impact depletion of the Salton Sea Geothermal Field reservoir. Additionally, production wells at the proposed facility would be spread out to mitigate the risk of interference with existing production wells.

At full power, the existing electric generating facilities using the Salton Sea Geothermal Field extract and re-inject a combined total of about 27 and 20.5 million pounds of brine per hour, respectively.

Thus, about 76 percent of currently extracted power-producing brines are re-injected into the geothermal reservoir. Under these conditions, currently measured subsidence is consistent with the natural regional activity in the Salton Trough. The proposed SSU6 Project would extract about 12 to 13 million pounds of brine per hour and re-inject a total of about 9.7 million pounds per hour of combined effluent from the clarifier, cooling tower blow down and brine pond liquids. Thus, about 83 percent of brine extracted at the proposed facility would be injected into the Salton Sea Geothermal Field. With the addition of the proposed SSU6 Project facility, a total of about 39 million pounds per hour of brine would be extracted and about 30.2 million pounds per hour of brine would be re-injected into the Salton Sea Geothermal Field. Thus, about 77 percent of the total quantity of power-producing brines would be replenished. Although there will be a net increase in brine withdrawal, by maintaining at least the current rate of re-injection, the cumulative effect of the proposed SSU6 Project site and the existing facilities using the Salton Sea Geothermal Field on ground surface subsidence is considered less than significant.

5.2.4 Mitigation Measures

5.2.4.1 Seismic Shaking

The potential exists for strong ground shaking from a variety of nearby sources, including the Brawley Seismic Zone, the San Andreas Fault, the Imperial fault, the San Jacinto fault, and the Elmore Ranch faults.

- **Geo-1:** SSU6 Project facilities shall be designed in accordance with applicable building codes' seismic design criteria. Site-specific seismic design criteria including 1997 UBC seismic parameters, site-specific response spectra, and USGS uniform hazard spectra, are provided in the Geotechnical Investigation (Appendix J).

5.2.4.2 Liquefaction

To reduce the adverse effects of potential for liquefaction at the site, well pads, and linear facilities, ground improvement is recommended beneath settlement sensitive structures.

- **Geo-2:** SSU6 Project facility design shall include ground improvements beneath settlement sensitive structures. Alternatives include the use of earthquake drains, terra probing, vibro-floatation, or vibro-replacement (stone columns) or containment structures.
- **Geo-3:** A subsurface investigation shall be conducted after ground improvement operations are completed to confirm that the liquefaction hazard has been mitigated.

5.2.4.3 Settlement

- **Geo-4:** To reduce the potential for adverse differential settlement beneath heavily loaded settlement sensitive structures, deep foundations (driven piles) will be necessary in addition to the ground improvement recommendations listed above. Estimated settlement for various foundation loading conditions, as well as recommendations for deep foundation design, are provided in the Geotechnical Investigation (Appendix J).

5.2.4.4 Flooding

Earthquake induced flooding at the site associated with the existing Vail Lateral 5 Drain may occur if the embankment slopes do not have an adequate factor of safety against failure.

- **Geo-5:** An additional subsurface investigation and slope stability analysis shall be conducted on the existing Vail Lateral Drain 5 embankment to characterize this hazard. Mitigation measures, if needed, will consist of raising embankment heights and/or ground improvement during construction of the project.

5.2.4.5 Landslides and Lateral Spreading

Landslides and lateral spread hazard in the project area fall into two categories; embankments (relief created by filling on grade) and riverbank, canals or ditches (relief created by erosion or excavation below grade). Embankment failures would be caused by loads imposed by fill on weak, saturated soil. These types of failures will be located adjacent to the power plant itself. Canal, ditch, or riverbank failure will affect portions of the electrical transmission lines and pipelines leading away from the power plant.

- **Geo-6:** Ground improvement, slope set-backs, dewatering, buttressing, or combinations of these measures will be implemented as necessary to mitigate the localized landslide and lateral spreading hazards.

5.2.4.6 Expansive Soils

The earthwork and foundation design recommendations provided in the Geotechnical Report (Appendix J) to mitigate liquefaction and settlement (Geo-2, Geo-3, and Geo-4) will also mitigate any hazard related to expansive soils to less than significant.

5.2.4.7 Geologic Resources

There are no significant impacts to geologic resources; therefore, no mitigation is recommended.

5.2.5 Applicable Laws, Ordinances, Regulations, and Standards

The proposed project will be constructed and operated in accordance with all LORS applicable to geologic hazards and resources, discussed below and summarized in Table 5.2-2.

5.2.5.1 Federal

There are no federal LORS for geological hazards and resources, or grading and erosion control.

5.2.5.2 State

California Public Resources Code 25523(a): 20 CCR § 1252 (b) and (c). None of the project components crosses an Alquist-Priolo Earthquake Zone. The SSU6 project will not be subject to requirements for construction within an Earthquake Fault Zone.

California Building Code (CBC). 1998 edition of the CBC is based on the Uniform Building Code (UBC) 1997 edition with revisions specifically tailored to geologic hazards in California.

Chapter 16: Structural Design Requirements, Division IV Earthquake Design. This section requires structural designs to be based on geologic information for seismic parameters, soil characteristics, and site geology.

Chapter 18: Foundations and Retaining Walls, Division I. This section sets requirements for excavations and fills, foundations, and retaining structures, with regard to expansive soils, subgrade bearing capacity, seismic parameters, and also addresses waterproofing and dampproofing foundations. In Seismic Zones 3 and 4, as defined by the UBC, liquefaction potential at the site should be evaluated. Division III contains requirements for mitigating effects of expansive soils for slab-on-grade foundations.

Chapter 33: Site Work, Demolition and Construction, and Appendix Chapter 33. These sections establish rules and regulations for construction of cut and fill slopes, fill placement for structural support, and slope setbacks for foundations.

California Environmental Quality Act of 1970 (CEQA). The CEC will be the lead agency for rules and regulations to implement the California Environmental Quality Act. Appendix G, Section VI of the CEQA guidelines contains the geologic hazards and resources related to the SSU6 Project.

CCR, Title 14, Division 2, Subchapter 4, Statewide Geothermal Regulations § 1931-§1932; §1937.1. This subchapter set forth the rules and regulations governing the geothermal regulation program of the Division of Oil, Gas, and Geothermal Resources (CDOGGR) as provided for by Chapter 4 (Sections 3700-3776), Division 3, of the Public Resources Code. This code establishes requirements for drilling, constructing, and operating geothermal production and injection wells in a manner to protect or minimize damage to the environment, usable ground waters (if any), surface water, geothermal resources, life, health and property.

The administering agency for the above regulation is CDOGGR.

The SSU6 Project would comply with the appropriate rules and reporting requirements of this regulation.

California Public Resources Code, Division 3, Chapter 4, §3700-3776. This code establishes requirements for drilling, constructing, and operating geothermal production and injection wells. This code sets standards for geothermal exploration and development that protect geothermal resources and prevent damage to underground and surface waters suitable for irrigation or domestic purposes from the drilling, operation, maintenance, and abandonment of geothermal wells. For the purpose of CEQA (commencing with Section 21000), this code establishes CDOGGR as the lead agent; however, CDOGGR can delegate its authority to the County, if appropriate. The permit and reporting requirements set forth in this code are consistent with those described in CCR, Title 14, Division 2, Subchapter 4, Statewide Geothermal Regulations § 1931-§1932; §1937.1.

The administering agency for the above regulation is the CDOGGR.

The SSU6 Project would comply with the appropriate rules and reporting requirements of this regulation.

5.2.5.3 Local

Imperial County General Plan: Seismic/Geologic Hazards Elements. The Seismic/Geologic Hazards elements of the Imperial County General Plan provides an implementation program to reduce the threat of seismic and public safety hazards within unincorporated areas of Imperial County.

Utilities that cross an active fault would be required to submit an operation plan to Imperial County describing the probable effects of failures at the fault(s) and the various emergency facilities and procedures that exist to assure that failure does not threaten public safety.

The SSU6 Project would comply with all of the Seismic/Geologic Hazards Elements of the Imperial County General Plan. No active faults would be crossed by the proposed transmission lines.

The County will review the geologic information and geotechnical recommendations presented in the geotechnical report.

5.2.5.4 Involved Agencies and Agency Contacts

Agencies with jurisdiction to enforce LORS related to geologic hazards and resources, and the appropriate contact person are summarized in Table 5.2-3 below. The County of Imperial traditionally works jointly with the California Division of Oil, Gas, and Geothermal Resources to regulate and develop the geothermal resources in the Imperial Valley.

5.2.5.5 Permits Required

There are no applicable permits required for geologic hazards.

5.2.6 References

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Table 5.2-1
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
1	32.500	115.000	11/29/1852	6.50	0.024	V	58 [94]
2	33.500	115.820	5/ 0/1868	6.30	0.066	VI	26 [41]
3	33.000	115.000	5/ 3/1872	5.50	0.017	IV	38 [61]
4	33.400	116.300	2/ 9/1890	6.30	0.032	V	42 [68]
5	32.700	116.300	2/24/1892	6.70	0.036	V	51 [82]
6	33.200	116.200	5/28/1892	6.30	0.046	VI	34 [54]
7	32.500	115.000	4/19/1906	6.00	0.019	IV	47 [75]
8	33.000	115.000	3/23/1908	4.60	0.034	V	13 [22]
9	33.250	115.000	12/27/1910	4.60	0.052	VI	9 [14]
10	33.100	116.600	2/16/1915	4.00	0.001	-	57 [92]
11	33.100	116.600	3/ 4/1915	4.00	0.001	-	57 [92]
12	33.000	115.000	4/28/1915	4.00	0.02	IV	13 [22]
13	33.000	115.500	4/30/1915	4.00	0.02	IV	13 [22]
14	33.100	116.600	5/11/1915	4.00	0.001	-	57 [92]
15	32.800	115.500	6/23/1915	6.25	0.062	VI	26 [42]
16	32.800	115.500	6/23/1915	6.25	0.062	VI	26 [42]
17	32.800	115.500	7/ 3/1915	4.60	0.013	III	26 [42]
18	32.800	115.500	7/ 4/1915	4.60	0.013	III	26 [42]
19	32.800	115.500	7/ 4/1915	4.60	0.013	III	26 [42]
20	32.800	115.500	8/18/1915	4.00	0.007	II	26 [42]
21	32.800	115.500	8/19/1915	4.00	0.007	II	26 [42]
22	32.800	115.500	8/19/1915	4.00	0.007	II	26 [42]
23	32.800	115.500	8/20/1915	4.00	0.007	II	26 [42]
24	33.500	116.500	9/30/1916	5.00	0.005	II	56 [90]
25	33.500	116.000	9/30/1916	4.00	0.005	II	32 [51]
26	32.700	115.500	11/ 3/1916	4.00	0.005	II	33 [53]
27	32.700	115.500	12/ 7/1916	4.00	0.005	II	33 [53]
28	32.700	115.500	12/ 7/1916	4.00	0.005	II	33 [53]
29	33.000	115.500	5/27/1917	4.00	0.02	IV	13 [22]
30	32.800	115.300	5/28/1917	5.50	0.023	IV	31 [51]
31	33.100	116.600	5/28/1917	4.00	0.001	-	57 [92]
32	33.000	115.500	5/31/1917	4.60	0.034	V	13 [22]
33	32.700	115.500	6/ 8/1917	4.00	0.005	II	33 [53]
34	33.000	116.600	6/11/1917	4.00	0.001	-	58 [93]
35	32.800	115.500	6/18/1917	4.00	0.007	II	26 [42]
36	33.700	116.200	8/12/1917	4.00	0.002	-	50 [80]
37	33.100	116.600	8/19/1917	4.00	0.001	-	57 [92]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
38	33.750	116.250	11/19/1917	4.00	0.002	-	54 [87]
39	32.700	115.500	12/ 8/1917	4.00	0.005	II	33 [53]
40	33.000	115.500	12/20/1917	4.00	0.02	IV	13 [22]
41	32.500	115.500	5/ 1/1918	5.00	0.007	II	47 [75]
42	32.700	115.500	5/ 2/1918	4.00	0.005	II	33 [53]
43	33.100	115.500	5/11/1918	4.60	0.055	VI	8 [13]
44	33.400	116.500	10/11/1918	4.00	0.002	-	53 [86]
45	32.700	115.500	10/14/1918	4.00	0.005	II	33 [53]
46	32.750	116.000	2/19/1919	4.50	0.007	II	36 [58]
47	32.600	115.000	9/30/1919	4.00	0.002	-	53 [86]
48	32.500	115.000	9/30/1919	4.60	0.003	I	58 [94]
49	32.700	115.500	10/ 1/1919	4.00	0.005	II	33 [53]
50	33.100	116.000	2/ 9/1920	4.00	0.001	-	57 [92]
51	33.000	116.000	5/18/1920	4.50	0.013	III	25 [40]
52	33.200	116.600	10/12/1920	5.30	0.007	II	57 [91]
53	33.000	115.500	12/20/1920	4.00	0.02	IV	13 [22]
54	33.000	115.500	12/20/1920	4.50	0.032	V	13 [22]
55	33.000	115.500	12/21/1920	4.50	0.032	V	13 [22]
56	33.100	116.600	8/10/1921	4.00	0.001	-	57 [92]
57	33.100	116.600	8/10/1921	4.00	0.001	-	57 [92]
58	32.500	115.500	9/ 8/1921	5.00	0.007	II	47 [75]
59	32.700	115.500	11/17/1921	4.00	0.005	II	33 [53]
60	33.100	116.600	2/ 5/1922	4.00	0.001	-	57 [92]
61	32.500	115.500	6/16/1922	4.00	0.002	-	47 [75]
62	32.500	115.500	11/ 5/1923	5.00	0.007	II	47 [75]
63	32.500	115.500	11/ 7/1923	5.50	0.012	III	47 [75]
64	33.000	115.500	10/23/1924	4.30	0.027	V	13 [22]
65	33.000	115.500	10/24/1924	4.60	0.034	V	13 [22]
66	32.500	115.500	4/16/1925	5.00	0.007	II	47 [75]
67	32.500	115.500	4/16/1925	5.30	0.01	III	47 [75]
68	33.000	115.500	8/31/1925	4.00	0.02	IV	13 [22]
69	34.000	116.000	4/ 3/1926	5.50	0.007	II	61 [99]
70	32.700	115.500	12/ 9/1926	4.00	0.005	II	33 [53]
71	32.500	115.500	1/ 1/1927	5.75	0.015	IV	47 [75]
72	32.700	115.500	1/ 1/1927	4.60	0.009	III	33 [53]
73	32.500	115.500	1/ 1/1927	5.50	0.012	III	47 [75]
74	32.700	115.500	1/ 1/1927	4.60	0.009	III	33 [53]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
75	32.700	115.500	1/ 1/1927	5.30	0.018	IV	33 [53]
76	32.670	115.500	1/ 2/1927	4.30	0.006	II	35 [56]
77	32.700	115.500	1/ 2/1927	4.00	0.005	II	33 [53]
78	32.670	115.500	1/ 6/1927	4.30	0.006	II	35 [56]
79	32.700	115.500	1/13/1927	4.00	0.005	II	33 [53]
80	32.700	115.500	1/16/1927	4.60	0.009	III	33 [53]
81	32.800	115.500	2/12/1927	4.60	0.013	III	26 [42]
82	32.700	115.500	7/16/1927	4.00	0.005	II	33 [53]
83	34.000	116.000	9/ 5/1928	5.00	0.004	I	61 [99]
84	32.700	115.500	9/23/1928	4.00	0.005	II	33 [53]
85	32.900	115.700	10/ 2/1928	5.00	0.031	V	19 [31]
86	32.800	116.200	7/23/1929	4.30	0.004	I	42 [68]
87	33.000	115.500	2/26/1930	5.00	0.048	VI	13 [22]
88	33.000	115.500	3/ 1/1930	4.50	0.032	V	13 [22]
89	33.000	115.500	3/ 1/1930	4.50	0.032	V	13 [22]
90	33.000	115.500	3/ 2/1930	4.50	0.032	V	13 [22]
91	32.800	115.300	5/ 8/1930	4.00	0.005	II	31 [51]
92	33.200	116.300	5/12/1930	4.00	0.003	I	39 [63]
93	32.500	115.500	6/24/1930	4.00	0.002	-	47 [75]
94	32.500	115.500	6/26/1930	4.50	0.004	I	47 [75]
95	32.500	115.667	2/12/1932	4.00	0.002	-	46 [74]
96	33.167	116.500	6/23/1932	4.00	0.002	-	51 [82]
97	33.167	116.500	6/23/1932	4.00	0.002	-	51 [82]
98	32.667	115.500	10/ 9/1932	4.50	0.007	II	35 [57]
99	32.667	115.500	10/ 9/1932	4.00	0.004	I	35 [57]
100	32.667	115.500	10/10/1932	4.00	0.004	I	35 [57]
101	32.833	115.750	2/24/1933	4.50	0.014	III	24 [39]
102	33.500	115.500	5/19/1933	4.30	0.012	III	24 [39]
103	33.333	116.300	8/ 5/1933	4.40	0.005	II	41 [66]
104	33.333	116.300	8/ 6/1933	4.70	0.007	II	41 [66]
105	33.000	115.500	10/30/1933	4.20	0.024	V	13 [22]
106	32.500	115.600	12/ 8/1933	4.00	0.002	-	46 [74]
107	32.500	115.000	12/28/1933	4.50	0.003	-	58 [94]
108	32.500	115.000	12/29/1933	4.00	0.001	-	58 [94]
109	32.700	115.117	1/ 4/1934	4.50	0.005	II	43 [70]
110	32.500	115.000	1/12/1934	4.00	0.001	-	58 [94]
111	32.500	115.333	2/11/1934	4.00	0.002	-	49 [79]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
112	33.083	115.983	3/ 2/1934	4.50	0.016	IV	22 [35]
113	32.450	115.617	6/20/1935	4.00	0.002	-	50 [80]
114	32.917	115.467	7/23/1935	4.00	0.012	III	19 [31]
115	32.900	115.217	9/ 8/1935	4.50	0.01	III	30 [48]
116	32.900	115.217	9/ 8/1935	5.00	0.016	IV	30 [48]
117	32.900	115.217	10/11/1935	5.00	0.016	IV	30 [48]
118	33.167	116.417	10/14/1935	4.00	0.002	-	46 [74]
119	33.150	116.583	12/ 2/1935	4.00	0.002	-	56 [90]
120	33.167	115.500	12/20/1935	5.00	0.083	VII	7 [11]
121	33.333	115.500	1/ 2/1936	4.00	0.021	IV	13 [21]
122	32.417	115.583	1/ 3/1936	4.00	0.002	-	52 [84]
123	32.900	115.217	4/ 7/1936	4.00	0.006	II	30 [48]
124	32.900	115.217	4/ 7/1936	4.50	0.01	III	30 [48]
125	32.900	115.217	4/ 8/1936	4.00	0.006	II	30 [48]
126	32.900	115.217	4/18/1936	4.00	0.006	II	30 [48]
127	33.133	116.083	5/ 7/1936	4.50	0.012	III	27 [43]
128	32.917	115.417	9/18/1936	4.00	0.011	III	21 [34]
129	32.856	115.710	9/18/1936	4.50	0.016	IV	22 [36]
130	32.917	115.417	9/18/1936	4.00	0.011	III	21 [34]
131	32.933	115.417	9/18/1936	4.00	0.011	III	20 [32]
132	32.933	115.417	9/18/1936	4.00	0.011	III	20 [32]
133	32.792	115.914	10/12/1936	4.00	0.005	II	31 [50]
134	32.764	115.908	10/12/1936	4.00	0.005	II	33 [52]
135	33.783	116.283	3/ 4/1937	4.00	0.001	-	57 [92]
136	33.408	116.261	3/25/1937	6.00	0.023	IV	41 [65]
137	33.426	116.421	3/25/1937	4.00	0.002	-	50 [80]
138	33.368	116.444	3/25/1937	4.00	0.002	-	50 [80]
139	33.467	116.583	3/26/1937	4.00	0.001	-	59 [95]
140	33.467	116.583	3/27/1937	4.00	0.001	-	59 [95]
141	33.467	116.583	3/27/1937	4.50	0.002	-	59 [95]
142	33.420	116.490	3/29/1937	4.00	0.002	-	53 [86]
143	33.167	116.167	11/16/1937	4.00	0.005	II	32 [51]
144	33.083	115.983	12/15/1937	4.00	0.01	III	22 [35]
145	33.467	116.583	1/ 4/1938	4.50	0.002	-	59 [95]
146	32.883	115.583	4/13/1938	4.50	0.019	IV	20 [32]
147	32.450	115.617	4/17/1938	4.00	0.002	-	50 [80]
148	32.900	115.217	6/ 6/1938	5.00	0.016	IV	30 [48]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
149	33.383	115.600	6/29/1938	4.00	0.018	IV	15 [24]
150	32.786	116.055	7/ 4/1938	4.00	0.004	I	37 [59]
151	33.167	116.417	7/10/1938	4.00	0.002	-	46 [74]
152	33.083	115.983	12/10/1938	4.00	0.01	III	22 [35]
153	32.333	115.750	12/15/1938	4.00	0.001	-	58 [94]
154	32.450	115.617	1/31/1939	4.00	0.002	-	50 [80]
155	32.533	116.183	2/22/1939	4.00	0.002	-	55 [88]
156	32.450	115.617	3/21/1939	4.00	0.002	-	50 [80]
157	32.450	115.617	3/25/1939	4.00	0.002	-	50 [80]
158	33.467	116.433	5/12/1939	4.50	0.003	I	51 [83]
159	32.533	116.183	11/12/1939	4.00	0.002	-	55 [88]
160	33.167	116.417	12/ 5/1939	4.00	0.002	-	46 [74]
161	33.383	115.600	12/31/1939	4.00	0.018	IV	15 [24]
162	33.300	116.300	1/ 4/1940	4.00	0.003	I	40 [65]
163	33.133	116.083	2/28/1940	4.50	0.012	III	27 [43]
164	32.733	115.450	4/29/1940	4.00	0.005	II	32 [51]
165	32.733	115.500	5/19/1940	6.70	0.071	VI	31 [50]
166	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
167	32.767	115.483	5/19/1940	5.50	0.026	V	29 [46]
168	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
169	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
170	32.767	115.483	5/19/1940	5.50	0.026	V	29 [46]
171	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
172	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
173	32.767	115.483	5/19/1940	5.00	0.017	IV	29 [46]
174	32.767	115.483	5/19/1940	5.50	0.026	V	29 [46]
175	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
176	32.767	115.483	5/19/1940	4.00	0.006	II	29 [46]
177	32.767	115.483	5/19/1940	4.00	0.006	II	29 [46]
178	32.767	115.483	5/19/1940	4.00	0.006	II	29 [46]
179	32.767	115.483	5/19/1940	4.00	0.006	II	29 [46]
180	32.767	115.483	5/19/1940	4.00	0.006	II	29 [46]
181	32.767	115.483	5/19/1940	4.50	0.01	III	29 [46]
182	32.767	115.483	5/21/1940	4.00	0.006	II	29 [46]
183	32.767	115.483	5/22/1940	4.50	0.01	III	29 [46]
184	32.767	115.483	6/ 1/1940	4.00	0.006	II	29 [46]
185	32.767	115.483	6/ 1/1940	4.50	0.01	III	29 [46]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
186	33.000	116.433	6/ 4/1940	5.10	0.007	II	48 [78]
187	33.117	116.417	6/ 4/1940	4.00	0.002	-	46 [74]
188	33.267	116.400	6/ 6/1940	4.00	0.002	-	46 [73]
189	32.767	115.483	6/ 7/1940	4.00	0.006	II	29 [46]
190	33.083	115.983	7/13/1940	4.00	0.01	III	22 [35]
191	33.083	115.983	7/14/1940	4.00	0.01	III	22 [35]
192	32.767	115.483	7/15/1940	4.00	0.006	II	29 [46]
193	33.167	115.983	7/21/1940	4.40	0.016	IV	21 [34]
194	33.133	116.083	10/ 6/1940	4.00	0.007	II	27 [43]
195	33.133	116.083	10/16/1940	4.00	0.007	II	27 [43]
196	32.767	115.483	10/17/1940	4.00	0.006	II	29 [46]
197	33.117	116.417	10/21/1940	4.50	0.004	I	46 [74]
198	33.500	116.483	2/23/1941	4.50	0.003	I	55 [88]
199	32.500	115.900	6/25/1941	4.00	0.002	-	49 [79]
200	32.733	115.450	7/22/1941	4.50	0.009	III	32 [51]
201	32.700	115.850	11/ 1/1941	4.00	0.004	I	35 [56]
202	32.600	116.100	12/24/1941	4.50	0.004	I	48 [77]
203	34.000	115.750	3/ 3/1942	5.00	0.005	II	58 [93]
204	34.000	115.750	3/ 4/1942	4.00	0.001	-	58 [93]
205	33.200	116.233	4/ 5/1942	4.00	0.004	I	36 [57]
206	32.983	115.983	5/23/1942	5.00	0.021	IV	25 [40]
207	33.333	116.233	6/ 9/1942	4.00	0.004	I	37 [60]
208	33.233	115.833	6/14/1942	4.00	0.021	IV	13 [21]
209	33.233	115.833	6/14/1942	4.00	0.021	IV	13 [21]
210	33.233	115.833	6/24/1942	4.00	0.021	IV	13 [21]
211	32.967	116.000	10/21/1942	6.50	0.076	VII	26 [42]
212	32.967	116.000	10/21/1942	5.00	0.02	IV	26 [42]
213	32.967	116.000	10/21/1942	5.00	0.02	IV	26 [42]
214	32.967	116.000	10/21/1942	4.50	0.012	III	26 [42]
215	32.967	116.000	10/21/1942	4.50	0.012	III	26 [42]
216	32.967	116.000	10/21/1942	4.50	0.012	III	26 [42]
217	32.967	116.000	10/21/1942	4.50	0.012	III	26 [42]
218	32.967	116.000	10/21/1942	4.00	0.007	II	26 [42]
219	33.233	115.717	10/22/1942	5.50	0.114	VII	7 [12]
220	32.967	116.000	10/22/1942	4.00	0.007	II	26 [42]
221	32.967	116.000	10/22/1942	4.00	0.007	II	26 [42]
222	32.967	116.000	10/22/1942	5.00	0.02	IV	26 [42]

**Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE**

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
223	32.950	116.150	10/25/1942	4.00	0.004	I	34 [55]
224	33.233	115.717	10/26/1942	4.50	0.056	VI	7 [12]
225	33.233	115.717	10/26/1942	4.00	0.037	V	7 [12]
226	32.967	116.000	10/26/1942	4.00	0.007	II	26 [42]
227	33.233	115.717	10/26/1942	4.50	0.056	VI	7 [12]
228	32.967	116.000	10/29/1942	4.50	0.012	III	26 [42]
229	32.967	116.000	10/29/1942	4.50	0.012	III	26 [42]
230	32.967	116.000	10/29/1942	4.00	0.007	II	26 [42]
231	32.967	116.000	10/30/1942	4.50	0.012	III	26 [42]
232	32.967	116.383	10/31/1942	4.00	0.002	-	46 [75]
233	32.967	116.000	11/ 2/1942	4.50	0.012	III	26 [42]
234	32.967	116.000	11/ 3/1942	4.50	0.012	III	26 [42]
235	32.967	116.000	11/ 3/1942	4.00	0.007	II	26 [42]
236	32.967	116.000	11/ 7/1942	4.00	0.007	II	26 [42]
237	32.967	116.000	11/12/1942	4.00	0.007	II	26 [42]
238	33.200	115.600	11/12/1942	4.00	0.055	VI	2 [4]
239	32.967	116.000	11/22/1942	4.00	0.007	II	26 [42]
240	33.417	116.417	1/ 2/1943	4.50	0.004	I	49 [79]
241	32.967	116.000	1/ 8/1943	4.00	0.007	II	26 [42]
242	32.967	116.000	2/24/1943	4.00	0.007	II	26 [42]
243	32.967	116.000	3/ 7/1943	4.00	0.007	II	26 [42]
244	32.733	115.433	3/17/1943	4.50	0.009	III	32 [51]
245	32.967	116.000	3/26/1943	4.00	0.007	II	26 [42]
246	32.967	116.000	4/ 7/1943	4.00	0.007	II	26 [42]
247	32.967	116.000	4/27/1943	4.00	0.007	II	26 [42]
248	32.967	116.000	4/30/1943	4.00	0.007	II	26 [42]
249	33.333	116.100	6/12/1943	4.00	0.006	II	30 [48]
250	33.117	116.117	6/18/1943	4.50	0.01	III	29 [47]
251	32.967	116.000	8/17/1943	4.00	0.007	II	26 [42]
252	33.000	115.000	10/28/1943	4.00	0.004	I	38 [61]
253	33.783	116.200	10/31/1943	4.50	0.003	I	54 [87]
254	32.967	116.000	11/ 2/1943	4.50	0.012	III	26 [42]
255	32.967	116.000	11/ 2/1943	4.00	0.007	II	26 [42]
256	32.967	116.000	11/ 2/1943	4.50	0.012	III	26 [42]
257	32.967	116.000	11/ 2/1943	4.00	0.007	II	26 [42]
258	32.967	116.000	11/ 2/1943	4.00	0.007	II	26 [42]
259	32.967	116.000	11/16/1943	4.00	0.007	II	26 [42]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
260	32.967	116.000	8/20/1944	4.00	0.007	II	26 [42]
261	33.317	116.067	9/ 4/1944	4.10	0.007	II	28 [45]
262	33.283	116.183	10/26/1944	4.20	0.006	II	34 [54]
263	33.217	116.133	8/15/1945	5.70	0.029	V	30 [48]
264	33.033	115.883	8/27/1945	4.00	0.014	III	18 [29]
265	33.000	115.833	1/ 8/1946	5.40	0.05	VI	17 [27]
266	32.883	115.617	1/16/1946	4.20	0.014	IV	20 [32]
267	33.867	115.700	4/28/1946	4.40	0.003	I	48 [78]
268	33.917	115.700	6/ 4/1946	4.80	0.005	II	52 [84]
269	32.600	116.317	6/15/1946	4.80	0.004	I	56 [91]
270	33.233	115.700	8/30/1946	4.60	0.064	VI	6 [10]
271	32.583	115.533	4/ 2/1947	4.20	0.004	I	41 [65]
272	33.283	116.033	3/16/1949	4.00	0.008	II	25 [41]
273	33.283	116.350	4/13/1949	4.10	0.003	I	43 [69]
274	34.017	115.767	5/ 2/1949	4.60	0.003	I	59 [95]
275	34.017	115.683	5/ 2/1949	5.90	0.012	III	59 [95]
276	34.017	115.683	5/ 2/1949	4.20	0.002	-	59 [95]
277	34.017	115.683	5/ 2/1949	4.20	0.002	-	59 [95]
278	34.017	115.683	5/ 6/1949	4.10	0.002	-	59 [95]
279	34.017	115.683	5/10/1949	4.70	0.003	I	59 [95]
280	34.017	115.683	5/22/1949	4.00	0.001	-	59 [95]
281	34.017	115.683	5/25/1949	4.50	0.003	-	59 [95]
282	33.850	115.850	10/13/1949	4.00	0.002	-	49 [79]
283	33.183	116.383	10/14/1949	4.10	0.003	I	44 [71]
284	33.117	115.567	7/27/1950	4.10	0.051	VI	5 [7]
285	33.117	115.567	7/27/1950	4.80	0.087	VII	5 [7]
286	33.117	115.567	7/27/1950	4.20	0.055	VI	5 [7]
287	33.117	115.567	7/27/1950	4.50	0.07	VI	5 [7]
288	33.117	115.567	7/28/1950	4.70	0.081	VII	5 [7]
289	33.117	115.567	7/28/1950	4.00	0.047	VI	5 [7]
290	33.117	115.567	7/28/1950	4.70	0.081	VII	5 [7]
291	33.117	115.567	7/28/1950	4.10	0.051	VI	5 [7]
292	33.117	115.567	7/28/1950	5.40	0.129	VIII	5 [7]
293	33.117	115.567	7/28/1950	4.80	0.087	VII	5 [7]
294	33.117	115.567	7/28/1950	4.20	0.055	VI	5 [7]
295	33.117	115.567	7/28/1950	4.00	0.047	VI	5 [7]
296	33.117	115.567	7/28/1950	4.20	0.055	VI	5 [7]

**Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE**

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
297	33.117	115.567	7/28/1950	4.10	0.051	VI	5 [7]
298	33.117	115.567	7/29/1950	4.50	0.07	VI	5 [7]
299	33.117	115.567	7/29/1950	5.50	0.138	VIII	5 [7]
300	33.117	115.567	7/29/1950	4.50	0.07	VI	5 [7]
301	33.117	115.567	7/29/1950	4.30	0.06	VI	5 [7]
302	33.117	115.567	7/29/1950	4.70	0.081	VII	5 [7]
303	33.117	115.567	8/ 1/1950	4.70	0.081	VII	5 [7]
304	33.117	115.567	8/14/1950	4.70	0.081	VII	5 [7]
305	32.400	115.100	12/ 7/1950	4.10	0.001	-	61 [98]
306	33.417	116.567	12/22/1950	4.00	0.001	-	57 [92]
307	33.200	116.117	12/28/1950	4.20	0.007	II	29 [46]
308	32.983	115.733	1/24/1951	5.60	0.07	VI	14 [23]
309	32.983	115.733	1/24/1951	4.00	0.019	IV	14 [23]
310	32.967	115.533	2/13/1951	4.20	0.022	IV	15 [24]
311	32.967	115.533	2/13/1951	4.10	0.02	IV	15 [24]
312	33.483	116.500	2/15/1951	4.80	0.004	I	55 [89]
313	33.483	116.500	2/15/1951	4.80	0.004	I	55 [89]
314	33.283	116.033	3/29/1951	4.40	0.012	III	25 [41]
315	33.267	115.667	8/10/1951	4.40	0.051	VI	7 [12]
316	33.200	116.000	8/15/1951	4.00	0.01	III	22 [36]
317	32.950	116.250	11/14/1951	4.10	0.004	I	39 [64]
318	33.100	115.400	12/ 5/1951	4.50	0.032	V	14 [22]
319	33.100	116.633	2/ 8/1952	4.00	0.001	-	59 [95]
320	33.283	115.917	3/28/1952	4.20	0.015	IV	19 [31]
321	33.400	116.567	2/ 4/1953	4.30	0.002	-	57 [92]
322	32.950	115.717	6/14/1953	5.50	0.057	VI	16 [26]
323	32.950	115.717	6/14/1953	4.80	0.033	V	16 [26]
324	34.050	115.633	9/11/1953	4.20	0.002	-	61 [98]
325	32.817	116.200	11/22/1953	4.10	0.003	I	41 [67]
326	33.100	116.450	11/23/1953	4.30	0.003	I	48 [78]
327	33.267	116.100	1/ 4/1954	4.20	0.008	II	29 [46]
328	33.333	116.433	2/12/1954	4.50	0.004	I	48 [78]
329	33.283	116.183	3/19/1954	6.20	0.042	VI	34 [54]
330	33.283	116.183	3/19/1954	5.00	0.013	III	34 [54]
331	33.283	116.183	3/19/1954	4.60	0.009	III	34 [54]
332	33.283	116.183	3/19/1954	4.00	0.004	I	34 [54]
333	33.283	116.183	3/19/1954	4.20	0.006	II	34 [54]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
334	33.283	116.183	3/19/1954	4.50	0.008	II	34 [54]
335	33.283	116.183	3/19/1954	4.50	0.008	II	34 [54]
336	33.283	116.183	3/19/1954	5.50	0.021	IV	34 [54]
337	33.283	116.183	3/19/1954	4.00	0.004	I	34 [54]
338	33.283	116.183	3/19/1954	4.30	0.006	II	34 [54]
339	33.283	116.183	3/19/1954	4.10	0.005	II	34 [54]
340	33.283	116.183	3/19/1954	4.00	0.004	I	34 [54]
341	33.283	116.183	3/20/1954	4.90	0.012	III	34 [54]
342	33.283	116.183	3/20/1954	4.30	0.006	II	34 [54]
343	33.283	116.183	3/23/54	5.10	0.014	IV	34 [54]
344	33.283	116.183	4/ 4/1954	4.10	0.005	II	34 [54]
345	34.033	115.550	10/30/1954	4.60	0.003	I	60 [96]
346	33.817	115.467	1/28/1955	4.30	0.003	I	46 [73]
347	33.167	115.767	5/10/1955	4.30	0.042	VI	9 [14]
348	33.133	115.400	6/15/1955	4.00	0.021	IV	13 [21]
349	33.050	116.017	8/26/1955	4.30	0.011	III	24 [39]
350	33.000	115.533	10/25/1955	4.30	0.029	V	13 [20]
351	33.000	115.500	12/17/1955	4.30	0.027	V	13 [22]
352	33.000	115.500	12/17/1955	5.40	0.065	VI	13 [22]
353	33.000	115.500	12/17/1955	4.10	0.022	IV	13 [22]
354	33.000	115.500	12/17/1955	4.60	0.034	V	13 [22]
355	33.000	115.500	12/17/1955	4.30	0.027	V	13 [22]
356	32.383	116.000	1/ 3/1956	4.70	0.003	I	59 [94]
357	33.745	115.997	9/ 1/1956	4.00	0.002	-	45 [73]
358	33.771	116.050	9/ 2/1956	4.20	0.003	I	48 [78]
359	33.534	116.561	9/23/1956	4.30	0.002	-	60 [96]
360	33.110	116.523	1/24/1957	4.60	0.004	I	52 [84]
361	33.038	116.361	2/26/1957	4.10	0.003	I	44 [71]
362	33.745	115.948	4/ 2/1957	4.10	0.003	I	44 [71]
363	33.216	115.808	4/25/1957	5.20	0.066	VI	11 [18]
364	33.100	115.900	4/25/1957	4.20	0.018	IV	17 [27]
365	33.183	115.850	4/25/1957	4.20	0.024	V	13 [22]
366	33.183	115.850	4/25/1957	5.10	0.052	VI	13 [22]
367	33.100	115.900	4/25/1957	4.10	0.016	IV	17 [27]
368	33.100	115.900	4/25/1957	4.20	0.018	IV	17 [27]
369	33.231	116.004	5/26/1957	5.00	0.024	V	23 [36]
370	33.002	116.436	7/ 2/1957	4.10	0.002	-	49 [78]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
371	32.300	115.517	7/25/1957	4.30	0.002	-	60 [97]
372	32.990	116.268	11/ 8/1958	4.10	0.004	I	40 [64]
373	32.600	115.700	12/19/1958	4.10	0.004	I	39 [64]
374	32.717	116.033	6/ 1/1959	4.60	0.006	II	39 [63]
375	33.950	115.667	8/ 4/1959	4.10	0.002	-	54 [87]
376	33.097	116.444	8/18/1959	4.30	0.003	I	48 [77]
377	32.300	115.550	9/19/1959	4.40	0.002	-	60 [97]
378	32.300	115.600	1/ 7/1960	4.10	0.001	-	60 [96]
379	32.733	115.700	4/21/1960	4.20	0.007	II	30 [49]
380	32.417	115.800	5/13/1960	4.10	0.002	-	53 [85]
381	33.167	116.467	8/ 1/1960	4.20	0.003	-	49 [79]
382	33.267	115.933	12/30/1960	4.00	0.012	III	19 [31]
383	32.500	115.500	2/ 9/1961	4.80	0.006	II	47 [75]
384	32.300	115.700	2/28/1961	4.40	0.002	-	60 [97]
385	33.240	116.036	4/28/1961	4.20	0.01	III	25 [40]
386	32.500	115.500	5/ 6/1961	4.10	0.003	-	47 [75]
387	32.500	115.500	5/ 6/1961	4.10	0.003	-	47 [75]
388	33.814	116.028	5/28/1961	4.40	0.003	I	50 [81]
389	32.640	114.996	7/28/1961	4.10	0.002	-	51 [83]
390	33.043	116.260	8/22/1961	4.40	0.005	II	38 [61]
391	33.050	116.238	8/23/1961	4.70	0.008	III	37 [59]
392	32.567	115.452	9/12/1961	4.80	0.007	II	43 [69]
393	32.567	115.450	9/12/1961	4.10	0.003	I	43 [69]
394	32.894	116.119	9/16/1961	4.40	0.007	II	35 [56]
395	33.033	116.233	9/20/1961	4.00	0.004	I	37 [59]
396	33.333	116.236	10/ 5/1962	4.10	0.004	I	37 [60]
397	33.021	116.223	1/13/1963	4.20	0.005	II	36 [59]
398	32.600	115.700	4/26/1963	4.00	0.003	I	39 [64]
399	32.915	115.697	5/23/1963	4.30	0.018	IV	18 [29]
400	32.982	115.566	5/23/1963	4.60	0.035	V	13 [21]
401	33.027	115.681	5/23/1963	4.80	0.053	VI	10 [17]
402	33.284	115.735	10/27/1963	4.00	0.027	V	10 [17]
403	33.200	115.633	10/27/1963	4.10	0.06	VI	2 [4]
404	33.356	115.388	10/27/1963	4.10	0.014	IV	19 [30]
405	32.885	115.865	10/27/1963	4.40	0.013	III	24 [39]
406	33.131	115.611	10/27/1963	4.20	0.064	VI	3 [4]
407	33.175	115.764	10/28/1963	4.00	0.033	V	8 [14]

**Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE**

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
408	33.036	115.903	10/ 5/1964	4.10	0.014	IV	19 [30]
409	33.053	115.855	10/ 5/1964	4.40	0.024	IV	16 [25]
410	33.002	116.085	11/21/1964	4.20	0.007	II	29 [47]
411	32.990	115.682	11/29/1964	4.20	0.026	V	13 [21]
412	33.012	115.592	4/11/1965	4.10	0.028	V	11 [18]
413	33.056	115.620	6/16/1965	4.40	0.049	VI	8 [12]
414	33.037	115.584	6/17/1965	4.30	0.039	V	9 [15]
415	33.008	115.660	6/17/1965	4.10	0.027	V	11 [18]
416	33.019	115.573	6/17/1965	4.20	0.032	V	11 [17]
417	33.288	116.018	7/27/1965	4.30	0.011	III	24 [39]
418	33.278	116.085	8/26/1965	4.20	0.008	III	28 [45]
419	33.233	116.086	8/26/1965	4.50	0.011	III	27 [44]
420	32.796	116.055	11/30/1965	4.00	0.004	I	36 [58]
421	33.279	116.249	1/ 7/1966	4.00	0.004	I	37 [60]
422	33.291	116.317	3/19/1966	4.00	0.003	I	41 [66]
423	33.053	116.306	4/ 2/1967	4.30	0.004	I	41 [65]
424	32.955	115.911	4/10/1967	4.00	0.009	III	22 [36]
425	33.506	116.585	5/21/1967	4.70	0.003	I	60 [97]
426	32.365	115.208	10/ 9/1967	4.00	0.001	-	60 [97]
427	33.190	116.129	4/ 9/1968	6.40	0.06	VI	30 [47]
428	33.167	116.117	4/ 9/1968	4.30	0.008	III	29 [46]
429	33.167	116.117	4/ 9/1968	4.40	0.009	III	29 [46]
430	33.113	116.037	4/ 9/1968	5.20	0.026	V	24 [39]
431	33.104	116.036	4/ 9/1968	4.70	0.016	IV	25 [39]
432	33.056	115.993	4/ 9/1968	4.30	0.012	III	23 [37]
433	33.107	116.007	4/ 9/1968	4.00	0.009	III	23 [37]
434	33.235	116.266	4/ 9/1968	4.00	0.004	I	38 [61]
435	33.103	116.061	4/ 9/1968	4.00	0.007	II	26 [42]
436	33.315	116.305	4/ 9/1968	4.70	0.007	II	41 [66]
437	33.237	116.190	4/14/1968	4.30	0.006	II	33 [54]
438	33.048	115.986	4/16/1968	4.80	0.02	IV	23 [37]
439	32.794	115.615	4/23/1968	4.10	0.008	III	26 [42]
440	33.039	115.949	5/ 6/1968	4.00	0.011	III	21 [34]
441	33.040	116.005	5/11/1968	4.20	0.01	III	24 [39]
442	33.310	116.224	5/22/1968	4.40	0.006	II	36 [58]
443	33.045	115.863	12/17/1968	4.70	0.029	V	16 [27]
444	33.887	116.040	1/23/1969	4.80	0.004	I	55 [89]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
445	33.826	115.985	1/25/1969	4.10	0.002	-	50 [81]
446	33.343	116.346	4/28/1969	5.80	0.017	IV	44 [70]
447	33.349	116.188	5/19/1969	4.50	0.007	II	35 [57]
448	33.019	116.225	8/20/1969	4.00	0.004	I	37 [59]
449	32.923	116.272	10/14/1969	4.50	0.005	II	41 [67]
450	32.680	116.354	1/21/1970	4.10	0.002	-	54 [87]
451	32.551	115.785	1/23/1971	4.10	0.003	I	44 [70]
452	33.501	116.429	2/23/1971	4.20	0.002	-	52 [84]
453	33.121	116.349	5/25/1971	4.10	0.003	I	42 [68]
454	32.961	116.290	8/25/1971	4.00	0.003	I	41 [67]
455	33.033	115.821	9/30/1971	5.10	0.046	VI	15 [24]
456	32.931	115.798	1/12/1972	4.00	0.012	III	19 [31]
457	32.354	115.593	3/17/1972	4.50	0.003	I	56 [90]
458	32.317	115.383	10/28/1972	4.00	0.001	-	60 [97]
459	32.317	115.383	10/28/1972	4.00	0.001	-	60 [97]
460	32.316	115.524	7/22/1973	4.00	0.001	-	59 [95]
461	32.952	116.279	9/13/1973	4.80	0.007	II	41 [66]
462	32.352	115.244	2/ 1/1974	4.10	0.001	-	60 [97]
463	32.708	115.392	12/ 6/1974	4.50	0.007	II	34 [55]
464	32.933	115.481	1/23/1975	4.00	0.013	III	18 [29]
465	32.929	115.481	1/23/1975	4.40	0.019	IV	18 [30]
466	32.945	115.485	1/23/1975	4.00	0.014	IV	17 [28]
467	32.945	115.485	1/23/1975	4.30	0.019	IV	17 [28]
468	32.952	115.490	1/23/1975	4.80	0.031	V	17 [27]
469	32.990	115.495	1/23/1975	4.00	0.019	IV	14 [23]
470	32.986	115.500	1/25/1975	4.30	0.025	V	14 [23]
471	32.777	115.438	6/20/1975	4.20	0.007	II	29 [47]
472	32.777	115.428	6/20/1975	4.10	0.007	II	29 [47]
473	33.520	116.558	8/ 2/1975	4.70	0.003	I	59 [96]
474	32.905	116.261	12/25/1975	4.00	0.003	I	41 [67]
475	33.117	115.615	4/26/1976	4.00	0.051	VI	4 [6]
476	33.484	116.513	8/11/1976	4.30	0.002	-	56 [90]
477	33.123	115.596	11/ 4/1976	4.20	0.061	VI	3 [5]
478	33.118	115.595	11/ 4/1976	4.10	0.055	VI	4 [6]
479	33.118	115.590	11/ 4/1976	4.10	0.054	VI	4 [6]
480	33.103	115.621	11/4/76	4.10	0.052	VI	4 [7]
481	33.109	115.619	11/ 4/1976	4.10	0.053	VI	4 [7]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
482	33.103	115.622	11/ 4/1976	4.20	0.056	VI	4 [7]
483	33.117	115.595	11/ 4/1976	4.40	0.069	VI	4 [6]
484	32.462	115.189	1/17/1977	4.20	0.002	-	55 [88]
485	32.886	115.507	10/20/1977	4.00	0.011	III	21 [33]
486	32.893	115.505	10/21/1977	4.30	0.015	IV	20 [32]
487	32.903	115.511	10/21/1977	4.20	0.015	IV	19 [31]
488	32.909	115.502	10/22/1977	4.00	0.012	III	19 [31]
489	32.880	115.504	10/30/1977	4.00	0.011	III	21 [34]
490	32.824	115.470	11/14/1977	4.20	0.009	III	25 [41]
491	32.812	115.469	11/14/77	4.10	0.008	III	26 [42]
492	32.816	115.463	11/14/1977	4.30	0.01	III	26 [42]
493	32.415	115.145	3/11/78	4.80	0.004	I	59 [95]
494	33.458	116.434	2/12/79	4.20	0.002	-	51 [82]
495	33.094	115.655	6/13/1979	4.10	0.047	VI	6 [9]
496	32.614	115.318	10/15/1979	6.60	0.044	VI	42 [68]
497	32.766	115.441	10/15/1979	5.20	0.019	IV	30 [48]
498	32.839	115.578	10/15/1979	4.00	0.009	III	23 [37]
499	32.788	115.618	10/15/1979	4.20	0.009	III	26 [42]
500	32.958	115.520	10/16/1979	4.20	0.02	IV	16 [25]
501	32.909	115.528	10/16/1979	4.60	0.023	IV	19 [30]
502	32.926	115.523	10/16/1979	4.30	0.019	IV	18 [28]
503	32.947	115.525	10/16/1979	4.00	0.016	IV	16 [26]
504	32.960	115.544	10/16/1979	4.50	0.028	V	15 [24]
505	32.945	115.543	10/16/1979	4.10	0.018	IV	16 [26]
506	32.950	115.557	10/16/1979	4.50	0.027	V	15 [25]
507	32.927	115.540	10/16/1979	5.10	0.039	V	17 [28]
508	32.913	115.534	10/16/1979	4.00	0.013	III	18 [29]
509	32.934	115.515	10/16/1979	4.00	0.014	IV	17 [28]
510	32.932	115.530	10/16/1979	4.10	0.016	IV	17 [28]
511	32.928	115.539	10/16/1979	5.10	0.039	V	17 [28]
512	33.003	115.514	10/16/1979	4.60	0.036	V	13 [21]
513	33.014	115.555	10/16/1979	5.50	0.082	VII	11 [18]
514	32.899	115.519	10/16/1979	4.20	0.015	IV	19 [31]
515	33.001	115.576	10/16/1979	4.00	0.024	IV	12 [19]
516	32.939	115.515	10/16/1979	4.00	0.015	IV	17 [27]
517	32.907	115.566	10/16/1979	4.80	0.028	V	18 [29]
518	32.873	115.507	10/16/1979	4.00	0.01	III	21 [34]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
519	33.026	115.504	10/16/1979	4.00	0.024	IV	12 [19]
520	33.019	115.504	10/16/1979	4.90	0.049	VI	12 [20]
521	32.904	115.576	10/17/1979	4.10	0.014	IV	18 [30]
522	33.046	115.490	10/17/1979	4.50	0.039	V	11 [18]
523	32.778	115.375	12/21/1979	4.60	0.01	III	30 [49]
524	32.892	115.526	1/12/1980	4.10	0.013	III	20 [32]
525	33.501	116.513	2/25/80	5.50	0.008	III	56 [91]
526	32.365	115.215	6/ 9/1980	4.30	0.002	-	60 [97]
527	32.663	115.583	10/31/1980	4.40	0.006	II	35 [56]
528	33.110	115.627	4/25/1981	4.10	0.054	VI	4 [6]
529	33.099	115.630	4/26/1981	4.00	0.046	VI	5 [8]
530	33.098	115.632	4/26/1981	5.70	0.153	VIII	5 [8]
531	33.079	115.680	4/26/1981	4.20	0.044	VI	7 [11]
532	33.058	116.211	3/22/1982	4.50	0.007	II	35 [56]
533	32.932	115.847	9/ 5/1982	4.40	0.016	IV	21 [34]
534	33.198	115.535	7/13/1983	4.00	0.045	VI	5 [8]
535	33.136	116.071	2/29/1984	4.30	0.01	III	26 [42]
536	33.110	116.400	4/ 1/1984	4.00	0.002	-	45 [73]
537	32.348	115.214	5/31/1984	4.10	0.001	-	61 [99]
538	33.460	116.370	9/ 7/1984	4.10	0.002	-	48 [77]
539	33.138	116.501	10/10/1984	4.50	0.003	I	51 [82]
540	32.393	115.311	2/ 7/1987	5.40	0.008	II	56 [91]
541	33.067	115.781	11/24/1987	4.20	0.029	V	12 [19]
542	33.072	115.782	11/24/1987	4.00	0.024	V	12 [19]
543	33.082	115.775	11/24/1987	5.80	0.104	VII	11 [17]
544	33.036	115.820	11/24/1987	4.50	0.028	V	15 [24]
545	33.048	115.798	11/24/1987	4.80	0.041	V	13 [21]
546	33.050	115.800	11/24/1987	4.00	0.021	IV	13 [21]
547	33.033	115.814	11/24/1987	4.00	0.018	IV	15 [24]
548	33.040	115.812	11/24/1987	4.70	0.035	V	14 [23]
549	33.022	115.808	11/24/1987	4.00	0.018	IV	15 [24]
550	33.013	115.839	11/24/1987	6.00	0.079	VII	17 [27]
551	33.014	115.815	11/24/1987	4.10	0.018	IV	16 [25]
552	33.008	115.786	11/24/1987	4.10	0.02	IV	15 [24]
553	32.993	115.872	11/24/1987	4.20	0.015	IV	19 [31]
554	33.133	115.873	11/24/1987	4.00	0.018	IV	15 [24]
555	32.942	115.763	11/24/1987	4.80	0.029	V	18 [28]

Table 5.2-1 (continued)
HISTORIC EARTHQUAKE ACTIVITY
NEAR THE PROPOSED SALTON SEA UNIT 6 SITE

Event Number	Latitude (North)	Longitude (West)	Date	Magnitude	Acceleration (%g)	Intensity	Distance from Site mi [km]
556	33.047	115.808	11/24/1987	4.00	0.02	IV	14 [22]
557	33.017	115.881	11/24/1987	4.30	0.017	IV	18 [30]
558	32.979	115.816	11/25/1987	4.20	0.017	IV	17 [28]
559	33.029	115.888	11/26/1987	4.30	0.018	IV	18 [29]
560	32.996	115.816	11/27/1987	4.70	0.029	V	16 [26]
561	32.980	115.809	11/28/1987	4.20	0.018	IV	17 [27]
562	32.995	115.813	12/ 2/1987	4.00	0.016	IV	16 [26]
563	32.914	115.684	1/28/1988	4.70	0.026	V	18 [29]
564	32.645	115.844	2/28/1988	4.21	0.004	I	38 [62]
565	33.483	116.438	7/ 2/1988	4.00	0.002	-	52 [84]
566	33.182	115.599	3/ 6/1989	4.30	0.072	VI	2 [2]
567	33.181	115.611	3/ 7/1989	4.10	0.063	VI	1 [2]
568	33.182	115.594	3/ 7/1989	4.20	0.066	VI	2 [3]
569	33.030	115.580	3/24/1989	4.00	0.029	V	10 [16]
570	33.730	116.020	12/18/1989	4.20	0.003	I	45 [73]
571	33.510	116.450	2/18/1990	4.10	0.002	-	53 [86]
572	32.380	115.240	3/31/1990	4.30	0.002	-	59 [94]
573	33.250	116.050	8/31/1990	4.20	0.009	III	26 [41]
574	33.210	115.970	7/19/1991	4.00	0.011	III	20 [33]
575	33.890	116.160	10/12/1991	4.00	0.001	-	59 [95]
576	32.822	116.175	5/24/1992	4.10	0.004	I	40 [65]
577	33.876	116.267	6/29/1992	5.20	0.005	II	61 [99]
578	32.612	115.628	7/27/1992	4.10	0.004	I	38 [62]
579	32.364	115.359	9/ 7/1993	4.00	0.001	-	58 [93]
580	32.366	115.359	12/20/1993	4.00	0.001	-	57 [92]
581	32.423	115.186	8/11/1994	4.60	0.003	I	57 [92]
582	32.376	115.378	8/30/1996	4.00	0.001	-	56 [91]
583	33.399	116.354	7/26/1997	4.80	0.006	II	45 [73]
584	32.337	115.264	12/ 9/1997	4.00	0.001	-	61 [98]
585	33.192	115.608	12/31/1997	4.10	0.061	VI	2 [3]
586	33.224	116.088	7/10/1998	4.10	0.007	II	27 [44]

Table 5.2-2
SUMMARY OF LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Jurisdiction	LORS	Requirements	Conformance Section	Administering Agency
5.2. Geologic Hazards and Resources				
Federal				
No federal LORS are applicable (See also Section 3 [facility design])				
State				
	Cal PRC 25523(a), Alquist-Priolo Earthquake Fault Zone	N/A	5.2.1.1.2, 5.2.5.2	1 and 2
	CCR, Title 14 Division 2, Subchapter 4; Statewide Geothermal Regulations Sections 1931 and 1932; Sections 1937.1	Sets forth rules and regulations governing the geothermal regulation program of the CDOGGR. Requires filing of a NOI prior to drilling, establishes reporting requirements.	Section 5.2.5.2	3
Local				
	Imperial County General Plan Seismic/Geologic Hazards Elements	Utilities that cross active faults are required to prepare an operations plan.	5.2.5.3	4
	California Building Code, Chapters 16, 18, and 33	Codes address excavation, grading and earthwork construction, including construction applicable to earthquake safety and seismic activity	Section 5.2.5.3 Appendix J	4

N/A: Not Applicable

Table 5.2-3
INVOLVED AGENCIES AND AGENCY CONTACTS

Number	Agency	Contact/Title	Telephone
1	California Energy Commission Facilities Siting Division Engineering Office	Bob Strand Engineer	916-653-1618
2	California Energy Commission Facilities Siting Division Siting Office	Steve Baker Senior Engineer	916-654-3915
3	California Division of Oil and Gas Resources	Mike Woods District Geothermal Engineer	760-353-9900
4	Imperial County Planning/Building Dept.	Jurg Heuberger	760-482-4236